

## **REMARKS**

Applicant wishes to thank the Examiner for the attention accorded to the instant application, and respectfully requests reconsideration of the application as amended.

### **Formal Matters**

Claims 2-17 are pending in the application. Claim 1 has previously been canceled.

### **Information Disclosure Statement**

The Examiner acknowledged the IDS filed on October 10, 2009 but did not consider the reference. Applicant respectfully notes that the IDS complies with 37 CFR 1.97 and 1.98. Specifically, the IDS includes a concise explanation of the relevance, as it is presently understood by the individual designated in 37 CFR 1.56(c) most knowledgeable about the content of the information; this concise explanation of the relevance is the English translation of the Japanese Office Action which cites the submitted reference, e.g., the non-English language document. A complete translation is not provided; applicant states that no written English language translation of the cited non-English language document, or portion thereof, is within the possession, custody or control of, or is readily available to any individual designated in 37 CFR 1.56(c) (see MPEP 609.01(B)(3)). Hence, applicant respectfully requests that the Examiner consider the reference.

### **Rejection of Claims Under 35 U.S.C. §102**

Claims 2-4 and 13-15 are rejected under 35 U.S.C. § 102(e) as anticipated by Kuwahara et al., U.S. Patent No. 6,804,216 (hereinafter “Kuwahara”). This rejection should be withdrawn based on the comments and remarks herein.

The Examiner contends that Kuwahara discloses a structure which is the same as the present invention; however, Kuwahara merely discloses a general structure for W-CDMA or the

like, namely, the structure that different long codes are assigned to different cells or sectors, and the structure that different short codes are assigned to different users within a cell or sector. Moreover, as the Examiner acknowledges, “Kuwahara discusses a transmitter having only one antenna for the sake of simplicity but a plurality of antennas would be equally effective in the invention disclosed” (Office Action, page 2, emphasis added). Although Kuwahara discloses that a transmitter can be provided with a plurality of antennas, Kuwahara does not teach how a system with a plurality of antennas could be implemented. Instead, Kuwahara considers only the assignment of the codes between the users and between the base stations. Kuwahara never considers the assignment of different codes between the antennas in the base station because, *inter alia*, Kuwahara discusses and describes only one antenna per transmitter. Kuwahara cannot teach or suggest a relationship between or among antennas, and Kuwahara does not teach or suggest a plurality of antennas at a base station or its transmitter.

In the present invention, when MIMO transmission/reception is carried out in the cell or the sector, if the correlation between the antennas is low, no restriction is made to the spread codes assigned in each of the antennas because independence of propagation paths is high. If the correlation between the antennas is high, the spread codes orthogonal between the antennas are assigned to the antennas because the independence of the propagation paths is low. The spread codes are assigned to a plurality of antennas in one transmitter, such as the base station transmitter. Independent claim 2 recites “preferentially **assigning, to the ith** (*i* is an integer of 1 or more and *M* or less) **transmission antenna** having a propagation path of a correlation value exceeding a predetermined threshold value, only spread codes orthogonal to the spread codes of **the jth** (*j* is an integer of 1 or more and *M* or less, *i* ≠ *j*) **transmission antenna** corresponding to the correlation value or spread codes having a small cross correlation value to spread codes of the

jth transmission antenna corresponding to the correlation value, **and assigning, to a transmission antenna** having no propagation path of a correlation value exceeding the threshold value, spread codes without considering orthogonality to spread codes **in the other transmission antennas.**" Accordingly, the features recited in the claims of the present invention are different from the presupposed or required structure discussed in Kuwahara.

It has been held by the courts that "Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim." *Lindemann Maschinenfabrik GMBH v. American Hoist and Derrick Company et al.*, 730 F.2d 1452, 221 USPQ 481 (Fed. Cir. 1984). As illustrated above, Kuwahara does not disclose assigning spread codes to transmission antennas according to spread codes of other transmission antennas, so that Kuwahara does not disclose every feature of the invention as recited in independent claims 2 and 13. Consequently, these independent claims are not anticipated by the art of record in the application. Claims 3 and 4 depend from claim 2, and claims 14 and 15 depend from claim 13, each dependent claim incorporating all of the features and limitations of its base claim. Hence, these dependent claims are not anticipated by the art of record for at least the reasons that their base claims are not anticipated by the art of record. Accordingly, this rejection should be withdrawn.

#### Rejection of Claims Under 35 U.S.C. §102

Claims 10 and 11 are rejected under 35 U.S.C. § 102(e) as anticipated by Sudo, U.S. Patent No. 7,298,722. This rejection should be withdrawn based on the comments and remarks herein.

The Examiner states that the recitation of "a transmitter for transmitting different first through Mth code spread transmission signals from each of M (M is an integer of 2 or more)

“transmission antennas” in independent claims 10 and 16 has not been given patentable weight because the recitation occurs in the preamble. Applicant respectfully submits that this recitation should be given patentable weight because the body of the claim depends on this feature for completeness; the process recited in the claim cannot stand alone without this feature. Applicant respectfully points out that spread codes assigned to the transmission antenna is recited in the body of the claim in two of the claim’s steps: in the reducing step and in the increasing step, that is, both these steps recite reducing/increasing spread codes assigned to the antenna. Thus the feature of a transmitter transmitting from each of M transmission antennas is not merely mentioned in the preamble but is necessary to complete the claim. Accordingly, this feature should be given patentable weight.

The Courts have held that the determination of whether preamble recitations are structural limitations or mere statements of purpose or use can be resolved only on review of the entirety of the application to gain an understanding of what the inventors actually invented and intended to encompass by the claim. *Corning Glass Works v. Sumitomo Elec. USA, Inc.*, 868 F.2d 1251, 1257, 9 USPQ2d 1961, 1966. Independent claim 10 is based on MIMO in which one radio transmission device, e.g., base station, transmits two or more transmission sequences, e.g., signal sequences, with two or more antennas. Claim 10 recites a spread code assigning method that reduces, when a detected reception quality is below an object minimum value, a maximum value of the number of the spread codes assigned to the transmission antenna corresponding to the reception quality, and increases, when the detected reception quality exceeds an object maximum value, the maximum value of the number of spread codes assigned to the transmission antenna corresponding to the reception quality.

By contrast, Sudo discloses one base station that transmits only one transmission

sequence (see columns 25-26). A signal level of spread codes to be assigned to the base station is decided in consideration of a reception characteristic in a receiving end. Sudo discloses the signal level of subcarriers with a low degree of signal multiplexing and/or with a high degree of signal multiplexing is changed adaptively (column 26, lines 17-24). Sudo does not teach or suggest changing the maximum value of the spread codes assigned to the transmission antenna, as recited in independent claim 10. Thus, Sudo does not teach each feature of the present invention as recited in claim 10, so that this independent claim, along with its dependent claim 11, are not anticipated by Sudo.

#### **Rejection of Claims Under 35 U.S.C. §103**

Claim 5 is rejected under 35 U.S.C. § 103(a) as unpatentable over Kuwahara in view of Aoki et al., U.S. Patent Application Publication No. 2004/0028157 (hereinafter “Aoki”). Claim 6 is rejected under 35 U.S.C. § 103(a) as unpatentable over Kuwahara in view of Sudo. Claim 7 is rejected under 35 U.S.C. § 103(a) as unpatentable over Kuwahara in view of Aoki, and further in view of Sudo. Claim 8 is rejected under 35 U.S.C. § 103(a) as unpatentable over Kuwahara in view of Goto, U.S. Patent Publication No. 2002/0037030. Claim 9 is rejected under 35 U.S.C. § 103(a) as unpatentable over Kuwahara in view of Aoki and further in view of Goto. Claims 12, 16 and 17 are rejected under 35 U.S.C. § 103(a) as unpatentable over Sudo in view of Kuwahara. These rejections should be withdrawn based on the comments and remarks herein.

As discussed above, Kuwahara does not disclose assigning spread codes to transmission antennas according to spread codes of other transmission antennas, as recited in independent claim 2. None of the additional art cited by the Examiner overcomes this deficiency, and the Examiner does not suggest otherwise.

It has been held by the courts that to establish *prima facie* obviousness of a claimed

invention, all the claim limitations must be taught or suggested by the prior art. See, *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974). As illustrated above, the hypothetical combination of Kuwahara, Sudo, Aoki, and Goto, taken singly or in any combination, does not disclose or suggest assigning spread codes to transmission antennas according to spread codes of other transmission antennas as recited in independent claim 2, and does not teach or suggest each and every feature of the present invention as recited in this independent claim. Thus *prima facie* obviousness has not been established, so that this independent claim, and its dependent claims 5-9 and 12, patentably distinguish over the art of record in the application.

Further, as discussed above, Sudo does not disclose changing the maximum value of the spread codes assigned to the transmission antenna, as recited in independent claim 10. This feature is also recited in independent claim 16, so that Sudo does not teach each feature of claim 16. Kuwahara does not overcome this deficiency and the Examiner does not state otherwise. Thus *prima facie* obviousness has not been established, so that independent claim 16, and its dependent claim 17, patentably distinguish over the art of record in the application.

Accordingly, withdrawal of these rejections is respectfully requested.

**Conclusion**

For at least the reasons set forth in the foregoing discussion, Applicant believes that the Application is now allowable, and respectfully requests that the Examiner reconsider the rejection and allow the Application. Should the Examiner have any questions regarding this Amendment, or regarding the Application generally, the Examiner is invited to telephone the undersigned attorney.

Respectfully submitted,



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